

REMARKS

In the Office Action, the Examiner rejected claims 1-6, 8, 47, 51-55, 57-62, 64-87, and 91-96. Applicants canceled claims 7, 9-46, 48-50, 56, 63, and 88-90 in previous communications. By the present Response, Applicants amend claims 51, 68, and 87 to further clarify the claimed subject matter and cancel claims 95 and 96 without prejudice. Upon entry of the amendments, claims 1-6, 8, 47, 51-55, 57-62, 64-87, and 91-94 will remain pending in the present patent application. Applicants respectfully request reconsideration of the above-referenced application in view of the foregoing amendments and the following remarks.

Interview Summary

Applicants thank the Examiner for his participation in a telephonic interview with the undersigned representative on May 24, 2007. In this interview, the claims of the present patent application, the prior art of record, and the rejections set forth in the Office Action mailed February 27, 2007, were generally discussed. Particularly, while no specific agreement was reached, the undersigned representative pointed out certain deficiencies of the Henderson et al. reference and discussed certain distinguishing features that are absent from the Henderson et al. reference and are explicitly recited in the present claims. Further, Applicants' representative and the Examiner discussed the double patenting rejections and the rejection under 35 U.S.C. § 112, second paragraph. In the present Response, and at the request of the Examiner, Applicants have generally summarized, in writing, the points discussed in the interview. For at least the reasons discussed in the interview and provided below, all of the pending claims are believed to be in condition for allowance.

Double Patenting Rejections

In the Office Action, the Examiner rejected claims 1-6, 8, 47, 51-55, 68-78, 87, and 91-94 under the judicially-created doctrine of obviousness-type double patenting in view of claims 1-42 of U.S. Patent No. 6,727,483 and claims 1-28 of U.S. Patent No.

7,015,439. The Examiner also provisionally rejected claims 1-6, 8, 47, 51-55, 68-78, 87, and 91-94 under the judicially-created doctrine of obviousness-type double patenting in view of claims 1-7, 17-20, and 24-35 of co-pending U.S. Patent Application No. 11/144,898. Applicants respectfully traverse these rejections.

In short, the Office Action fails to include the minimum factual and legal analysis necessary to establish a *prima facie* case that the present claims are unpatentable under the doctrine of obviousness-type double patenting. Particularly, the Office Action merely states that the present claims are not patentably distinct from the claims of the cited patents “because the claimed portable induction components are overlapped by portable induction components.” Office Action mailed February 27, 2007, page 2. This conclusory statement, absent a reasonable explanation, fails as a matter of law to support the present rejections. Applicants respectfully assert that the present claims recite elements, including those discussed below with respect to the claim rejections under 35 U.S.C. § 103, that would not be obvious in view of the other claims noted by the Examiner. Accordingly, Applicants respectfully request that the Examiner either provide, for the record, a legally-sufficient basis for the present rejections (including an explanation as to why the Examiner believes the rejection to be proper in view of the recitations discussed below with respect to the Henderson reference, in addition to the other recitations of the instant claims) or withdraw the instant rejections.

Claim Rejections under 35 U.S.C. § 112, Second Paragraph

The Examiner rejected claims 1-6, 8, 47, 51-55, 68-78, 87, and 91-94 under 35 U.S.C. § 112, second paragraph, as indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Specifically, the Examiner stated:

The wordings “coupleable” and/or “operable” in claims 1, 4, 5, 8, 47, 51, 54, 57, 60, 61, 64, 68, 71, 72, 75, 79, 82, 83, 86, 87, 91, and 94 fail to positively state the relationship of disclosed members. For example, claim 1,

lines 3-4, “a power source electrically coupleable to a fluid-cooled induction heating cable and operable to produce a varying magnetic field”, the wordings “coupleable” and “operable” do not positively require “a power source electrically coupled to a fluid-cooled induction heating cable and ~~operable~~ [sic] to produce a varying magnetic field”.

Office Action mailed February 27, 2007, page 3. Applicants respectfully traverse this rejection.

Applicants respectfully remind the Examiner that a claim satisfies 35 U.S.C. § 112, second paragraph, if the claim apprises one of ordinary skill in the art of its scope, thus providing clear warning to others as to what constitutes infringement of the patent. *See Solomon v. Kimberly-Clark Corp.*, 55 U.S.P.Q.2d 1279, 1283 (Fed. Cir. 2000); *see also* Manual of Patent Examining Procedure, Section 2173.02. Conversely, if the language of the claim is such that a person of ordinary skill in the art would not understand how infringement could be avoided, then a rejection under Section 112, second paragraph, would be appropriate. *See id.*; *see also Morton Int’l, Inc. v. Cardinal Chem. Co.*, 28 U.S.P.Q.2d 1190, 1195 (Fed. Cir. 1993). Further, although the Examiner may take exception to the terms used in the claims, he is reminded that the patentee may be his own lexicographer. *Ellipse Corp. v. Ford Motor Co.*, 171 U.S.P.Q. 513 (7th Cir. 1971), *aff’d*, 613 F.2d 775 (7th Cir. 1979), *cert. denied*, 446 U.S. 939 (1980).

With respect to claim 1, Applicants agree with the Examiner that the terms “coupleable” and “operable” in lines 3-4 of claim 1 do not require “a power source electrically coupled to a fluid-cooled induction heating cable and ~~operable~~ [sic] to produce a varying magnetic field,” as suggested in the present Office Action. *See id.* Rather, one skilled in the art would understand that the terms “coupleable” and “operable” in this portion of claim 1 are descriptors of the recited “power source,” i.e., that the power source can be coupled to a fluid-cooled induction heating cable and can be

operated to produce a varying magnetic field. The other recitations of “coupleable” and “operable” in the present claims would be generally understood by one skilled in the art to have similar meanings. Applicants respectfully submit that, while the scope of the present recitations may be different than that preferred by the Examiner, the Office Action provides no supportable rationale as to why one skilled in the art would not understand the terms “coupleable” and “operable,” or as to why one skilled in the art would not be able to determine the scope of claims containing these terms. Because it is believed that one skilled in the art would, in fact, be able to determine the scope of these claims, Applicants respectfully request withdrawal of the present rejection under 35 U.S.C. § 112, second paragraph.

Rejections under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 47, 51-55, 68-78, and 95 under 35 U.S.C. § 103(a) as unpatentable over Henderson et al. (U.S. Patent No. 3,403,240) in view of Antier et al. (U.S. Patent No. 4,058,696) and Duncan (U.S. Patent No. 5,198,053). The Examiner also rejected claims 1-6, 8, 57-62, 64-66, 79-87, 91-94, and 96 under 35 U.S.C. § 103(a) as unpatentable over the same references in view of Cydzik et al. (U.S. Patent No. 5,874,713). Applicants respectfully traverse these rejections.

Legal Precedent

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex*

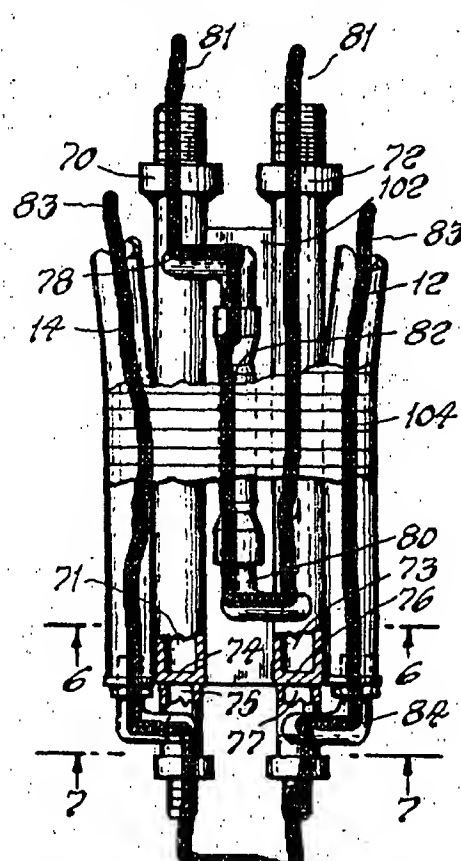
parte Clapp, 227 U.S.P.Q. 972 (B.P.A.I. 1985). When prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988).

Omitted Features of Independent Claims 1 and 47

Applicants respectfully note that the Henderson et al., Duncan, Antier et al., and Cydzik et al. references, even taken collectively, fail to disclose each element of independent claims 1 and 47. For instance, independent claim 1 recites “a cooling unit ... configured to cooperate with at least the fluid-cooled induction heating cable to provide a *single continuous cooling path* operable to dissipate heat from the fluid-cooled induction heating cable *and* from an electrical lead extending from the portable induction heating system to the fluid-cooled induction heating cable” (emphasis added). Similarly, independent claim 47 recites “a power source operable to apply output power to *an electrical pathway* ... [including] an induction heating cable adjacent the workpiece, a supply path from the portable heating system to the induction heating cable, and a return path from the induction heating cable to the portable heating system” and “wherein the induction heating cable is a fluid-cooled induction heating cable that cooperates with the cooling unit to form at least a portion of a *single cooling pathway* that is configured to generally extend along the supply path and the return path of the electrical pathway to remove heat therefrom” (emphasis added). Because the cited references fail to disclose such elements, the cited references cannot support a *prima facie* case of obviousness with respect to independent claims 1 and 47.

As will be appreciated, the Henderson et al. reference is generally directed to an induction brazing apparatus. Col. 1, lines 25-30; FIG. 2. More particularly, the Henderson et al. apparatus includes cooling water conduits 12 and 14, and water-cooled

electrical conduits 16 and 18, that extend from a work unit 10. Col. 2, lines 23-32. The water-cooled electrical conduits 16 and 18 extend to the handle 20, which is configured to complete a *first* cooling pathway by fluidly connecting the electrical conduits 16 and 18. *See* col. 3, lines 5-21 (“leads 16 and 18 are connected respectively in the same manner to tubular elements 70 and 72”); FIG. 5. The water conduits 12 and 14 extend from the work unit 10 to an induction heating element 22. Col. 3, lines 26-37. Notably, the reference explicitly states that “[s]eparate cooling fluid for the induction heating element 22 is supplied from conduits 12 and 14 ...” *Id.* It is, thus, evident that the water conduits 12 and 14 form a portion of a *second* cooling pathway that includes the induction heating element 22. For the Examiner’s convenience, these two separate and distinct pathways are indicated in the annotated Fig. 5 of the Henderson et al. reference provided immediately below:



From these passages and the annotated drawing above, it is clear that the *first cooling pathway* (generally indicated by arrows 81) including conduits 16 and 18 removes heat from the electrical leads to the handle 20, while it is the *second cooling pathway* (generally indicated by arrows 83) that removes heat from the induction heating element 22 itself. This is in direct opposition to the recitations of independent claims 1 and 47, which generally recite a *single cooling path* that includes a fluid-cooled induction heating cable and that operates to dissipate heat from *both* the fluid-cooled induction heating cable *and* an electrical lead extending between the induction heating cable and the portable induction heating system. For this reason, the Henderson et al. reference cannot be logically considered to disclose the *single cooling path* recited by the instant claims. Further, the Duncan, Antier et al., and Cydzik et al. references fail to obviate this deficiency. Consequently, these cited references, taken alone or in hypothetical combination, fail to teach or suggest each element of independent claims 1 and 47, and do not establish a *prima facie* case of obviousness of claims 1, 47, and their respective dependent claims.

Omitted Features of Independent Claims 57, 68, 79, and 87

Likewise, Applicants respectfully note that the Henderson et al., Duncan, Antier et al., and Cydzik et al. references, taken alone or in combination, fail to disclose each element of independent claims 57, 68, 79, and 87. For instance, independent claim 57 recites “a flow switch ... *configured to detect the cooling fluid* returning from the fluid-cooled induction heating cable *and to effect a change in the output power when the amount of the cooling fluid* returning from the fluid-cooled induction heating cable *is below a threshold amount*” (emphasis added). As a courtesy, Applicants note that an exemplary flow switch is discussed in the present application at page 23, lines 4-12, and is illustrated in FIG. 14 as element 282. Independent claim 79 similarly recites “a flow switch ... configured to detect the cooling fluid received from the fluid-cooled induction heating cable and to effect a change in the output power when the amount of the cooling fluid received from the fluid-cooled induction heating cable is below a threshold

amount.” Additionally, although Applicants do not agree with the rejection of claims 68 and 87 for at least the reasons indicated in the Response filed on February 21, 2006, Applicants have amended these claims to recite a similar “flow switch” in an effort to expedite prosecution of the instant application. Because the cited references fail to disclose such elements, the cited references fail to establish a *prima facie* case of obviousness with respect to independent claims 57, 68, 79, and 87.

In the Office Action, the Examiner suggested that a solenoid 122, a control box 131, and a check valve 128 of the Henderson et al. reference could be equated with the recited “flow switch.” While Applicants do not dispute that these elements of the Henderson et al. reference relate to flow control, the present rejection appears to ignore a substantial portion of the claim recitations regarding the flow switch. The Henderson et al. solenoid 122 actuates a valve 120 to start and stop coolant flow in the Henderson et al. apparatus. Col. 3, lines 65-71. Particularly, the reference states:

The solenoid 122 is connected by line 129 and control box 131 to a control cable 130 shown in FIG. 4 which in turn is connected to the power supply motor-generator set (not shown) to actuate the valve 120 through solenoid 122 to open position and supply cooling water to the induction heating element 22 only when power is being delivered to the heating element.

Id. In other words, the solenoid 122, via the control box 131, simply opens the valve 120 when power is applied to the heating element 22, and closes the valve 120 when power is not being applied to the heating element 22.

There is no disclosure, suggestion, or even hint in the cited reference that the solenoid 122 or control box 131 somehow “detect cooling fluid,” as recited in the present claims. In fact, as described in the cited reference, one skilled in the art would understand that the control box 131 detects a control signal (not cooling fluid) from a control cable

130, and the solenoid 122 detects a control signal (not cooling fluid) transmitted from the control box 131 over the line 129. Further, it is readily apparent that, in the Henderson et al. reference, the application of power to the heating element 22 by the power supply controls actuation of the solenoid 122; the solenoid 122 *does not* control the application of power to the heating element 22. As neither the solenoid 122 of the control box 131 detect cooling fluid, it is also evident that neither of these elements is configured “*to effect a change in the output power when the amount of the cooling fluid returning from the fluid-cooled induction heating cable is below a threshold amount*” (emphasis added). Additionally, the check valve 128 merely prevents water from flowing from a drain manifold 114 to the heating element 22; the cited reference does not teach, disclose, or even hint that the check valve 128 provides the functionality discussed above and recited in the instant claims. For at least these reasons, the solenoid 122, the check valve 128, and the control box 131 cannot be logically equated with the “flow switch” recited in the present claims. Further, the Duncan, Antier et al., and Cydzik et al. references fail to obviate this deficiency. Consequently, these cited references, taken alone or in hypothetical combination, fail to teach or suggest each element of independent claims 57, 68, 79, and 87, and do not establish a *prima facie* case of obviousness with respect to these independent claims or their respective dependent claims.

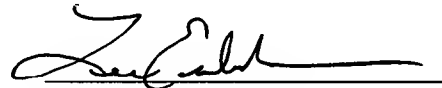
For at least these reasons, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103 and allowance of claims 1-6, 8, 47, 51-55, 57-62, 64-87, and 91-94.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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